

Total Maximum Daily Load (TMDL) Implementation



Gwynns Island, Milford Haven and Piankatank Watersheds
Mathews, Middlesex and Gloucester Counties

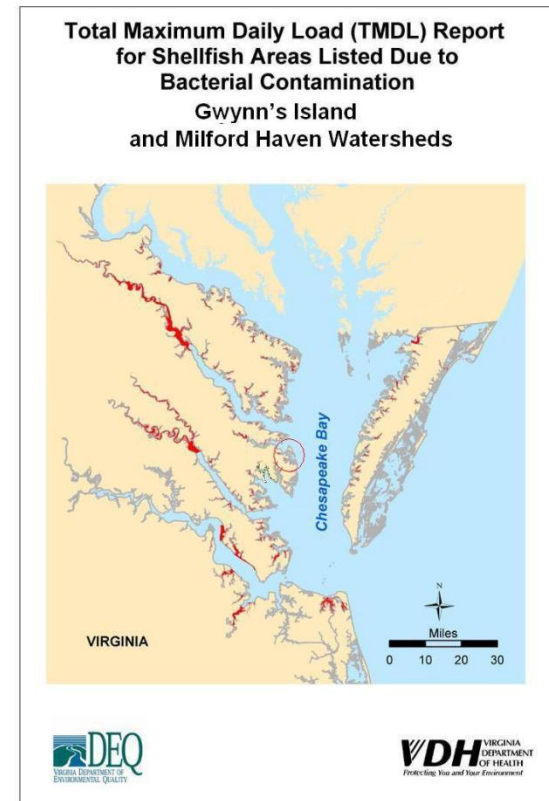
May Louise Sligh

VA Dept. of Conservation and Recreation
April 30, 2012



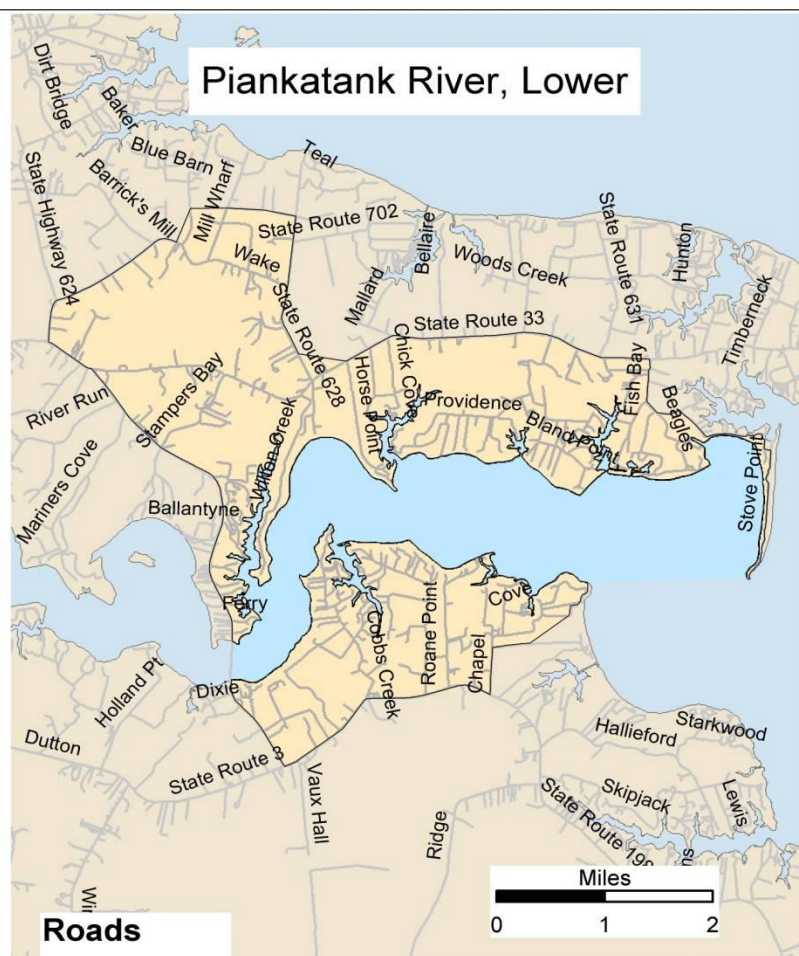
The TMDL Process: 3 Steps

- 1) TMDL study
- 2) TMDL implementation plan
- 3) Implement plan





Data Source: U.S. Census Bureau, Tiger/Line Data, 2000
 Map Date: June, 2004



Roads

- Primary
- Secondary
- Tertiary
- Other

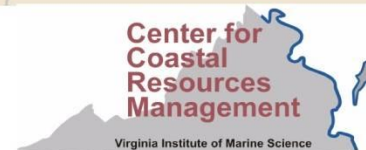


Figure 3.0

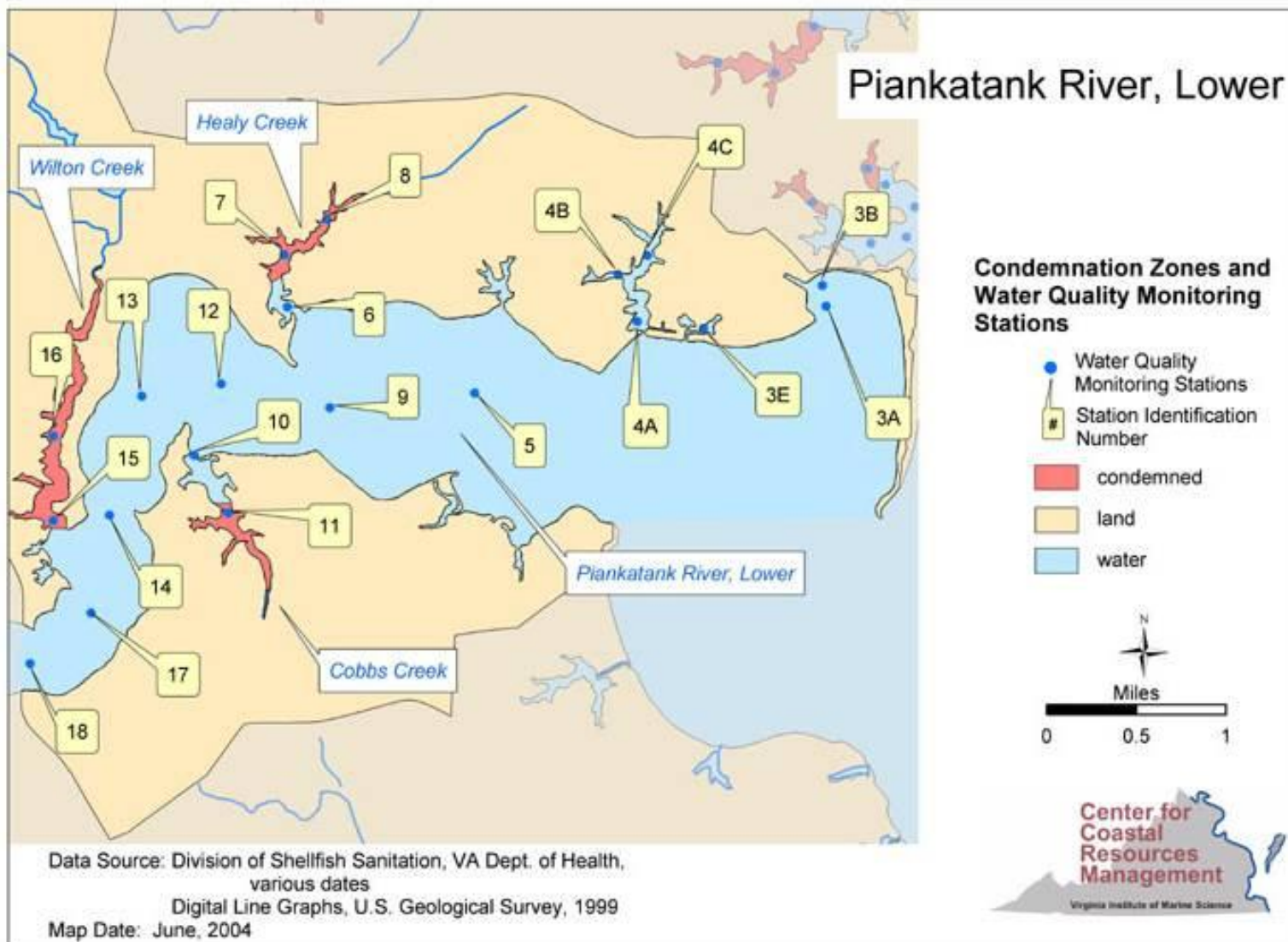


Figure 4.1

Piankatank River, Lower

Land Use/Land Cover

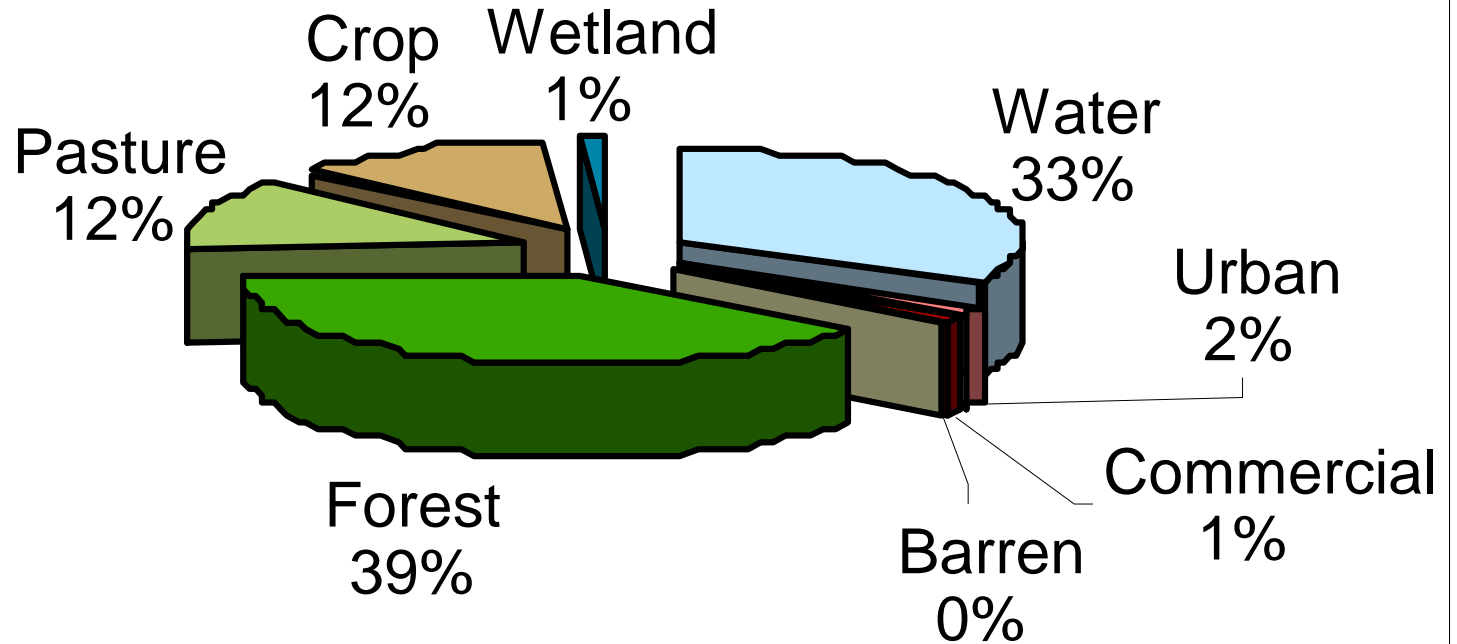
- Water
- Urban
- Commercial
- Barren
- Forest
- Pasture
- Crop
- Wetland



Data Source: National Land Cover Data Set, U.S. Geological Survey, 1999
Digital Line Graphs, U.S. Geological Survey, 1999
Map Date: June, 2004

Figure 3.1

Land Use Distribution Piankatank River, Lower



Reduction based upon 90TH PERCENTILE Standard
Growing Area 34: Piankatank River, Lower Watershed

Condemnation Area	Source	BST Allocation % of Total Load	Current Load (MPN/ day)	Load Allocation (MPN/ day)	Reduction Needed
126 Wilton Creek	Livestock	24%	2.71E+11	1.94E+09	99%
	Wildlife	49%	5.58E+11	1.40E+11	75%
	Human	22%	2.47E+11	0.00E+00	100%
	Pets	5%	5.8E+10	4.14E+08	99%
	Total	100%	1.13E+12	1.42E+11	87%
129 Healy Creek	Livestock	21%	7.84E+10	2.43E+09	97%
	Wildlife	58%	2.14E+11	4.28E+10	80%
	Human	14%	5.26E+10	0.00E+00	100%
	Pets	7%	2.41E+10	7.47E+08	97%
	Total	100%	3.69E+11	4.60E+10	88%
170 Cobbs Creek	Livestock	51%	6.16E+10	1.25E+10	80%
	Wildlife	28%	3.32E+10	3.32E+10	0%
	Human	19%	2.31E+10	0.00E+00	100%
	Pets	2%	2.62E+09	5.30E+08	80%
	Total	100.00%	1.21E+11	4.62E+10	62%

TMDL Summary for Three Closures in the Piankatank River, Lower Watershed (90th percentile)

Condemnation Area	Pollutant Identified	TMDL MPN/day	Waste Load Allocation MPN/day	Load Allocation MPN/day	Margin of Safety
126 Wilton Creek	Fecal Coliform	1.42E+11	N/A	1.42E+11	Implicit
129 Healy Creek	Fecal Coliform	4.60E+10	N/A	4.60E+10	Implicit
170 Cobbs Creek	Fecal Coliform	4.62E+10	N/A	4.62E+10	Implicit

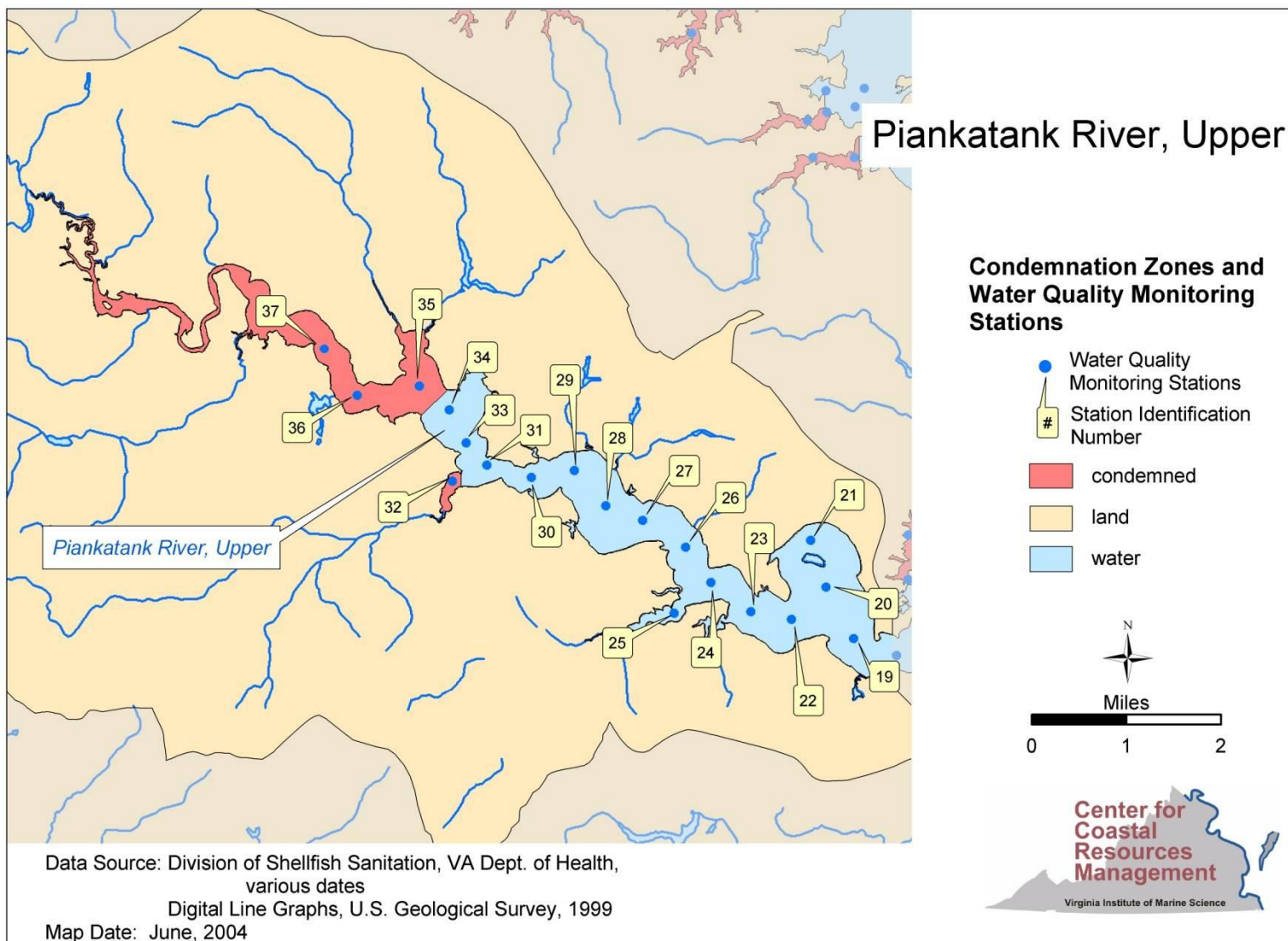
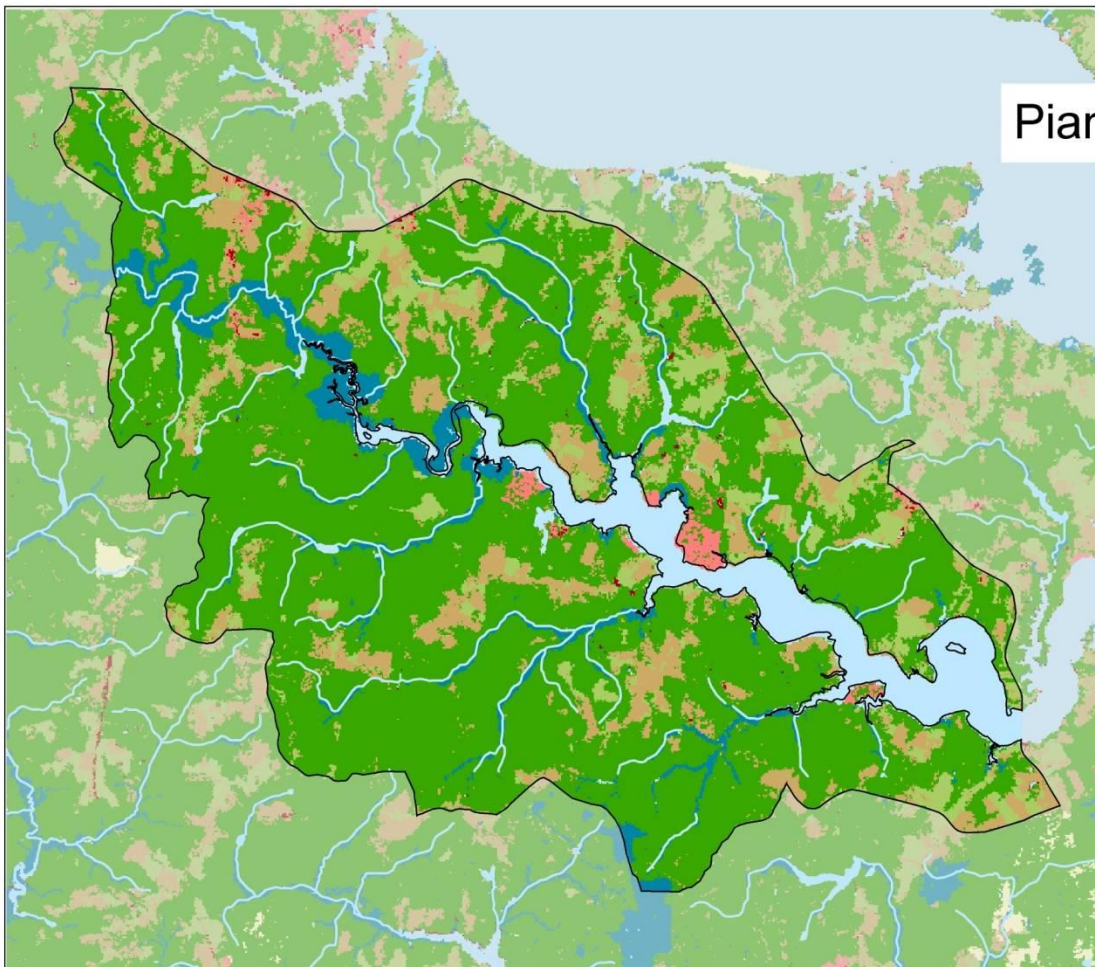


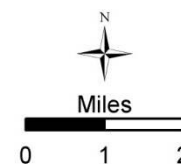
Figure 4.1

Piankatank River, Upper



Land Use/Land Cover

- Water
- Urban
- Commercial
- Barren
- Forest
- Pasture
- Crop
- Wetland



Data Source: National Land Cover Data Set, U.S. Geological Survey, 1999
Digital Line Graphs, U.S. Geological Survey, 1999
Map Date: June, 2004

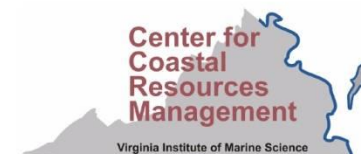
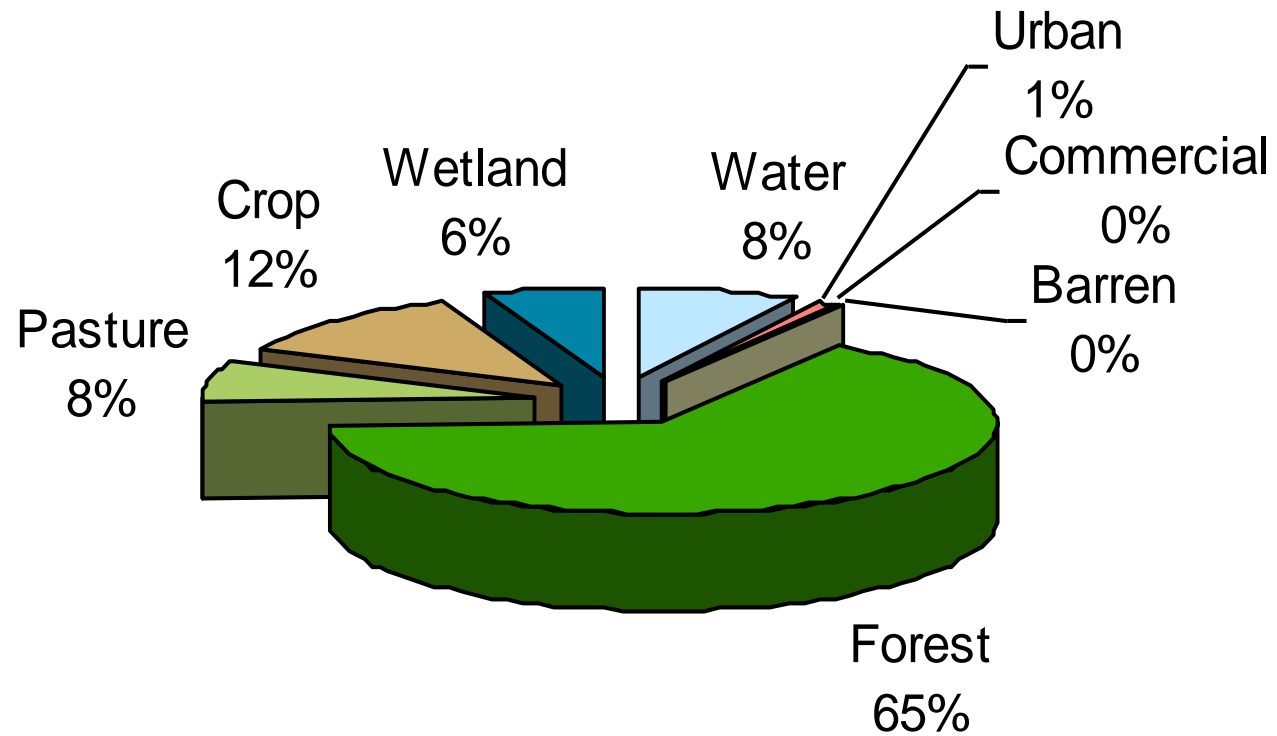


Figure 3.1

Land Use Distribution Piankatank River, Upper



Reduction and Allocation Based Upon 90th Percentile Standard: Growing Area 35

Condemnation Area	Source	BST Allocation % of Total Load	Current Load MPN/ day	Load Allocation MPN/ day	Reduction Needed
76A Piankatank River	Livestock	32%	2.10E+11	0.00E+00	100%
	Wildlife	30%	1.97E+11	1.21E+11	39%
	Human	27%	1.77E+11	0.00E+00	100%
	Pets	11%	7.22E+10	0.00E+00	100%
	Total	100%	6.56E+11	1.21E+11	81%
76B Harpers Creek	Livestock	33%	4.39E+11	0.00E+00	100%
	Wildlife	19%	2.53E+11	2.53E+11	0%
	Human	31%	4.12E+11	0.00E+00	100%
	Pets	17%	2.26E+11	1.20E+11	47%
	Total	100%	1.33E+12	3.73E+11	72%

TMDL Summary for Closures in the Piankatank River, Upper Watershed (90th percentile)

Condemnation Area	Pollutant Identified	TMDL MPN/day	Waste Load Allocation MPN/day	Load Allocation MPN/day	Margin of Safety
76A Piankatank River	Fecal Coliform	1.21E+11	N/A	1.21E+11	Implicit
76B Harpers Creek	Fecal Coliform	3.73E+11	N/A	3.73E+11	Implicit

Figure 3.1E
Land Use in Shellfish Growing Area 36, Gwynns Island, Edward's Creek

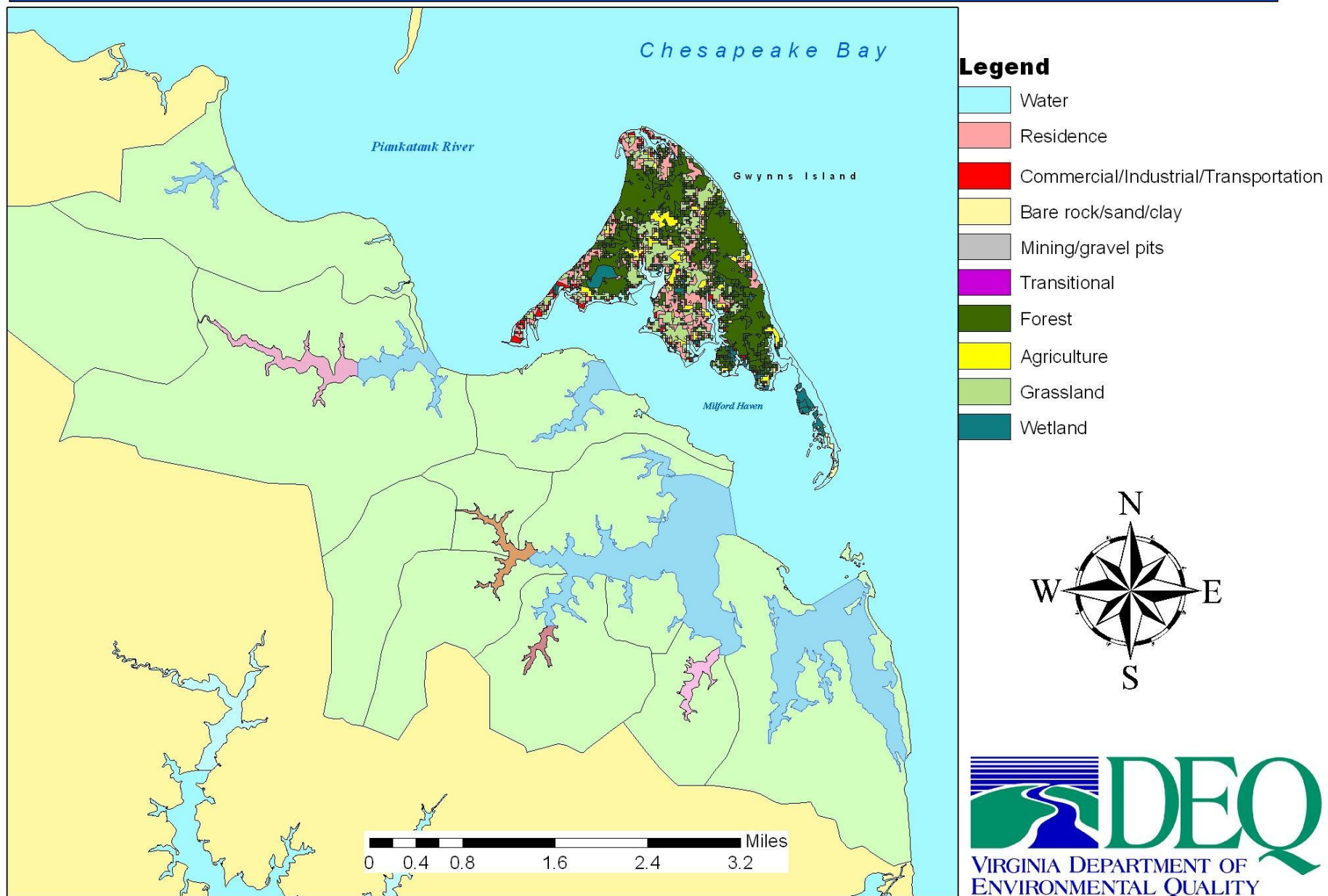


Figure 3.1C
Land Use in Shellfish Growing Area 37, Milford Haven, Morris Creek

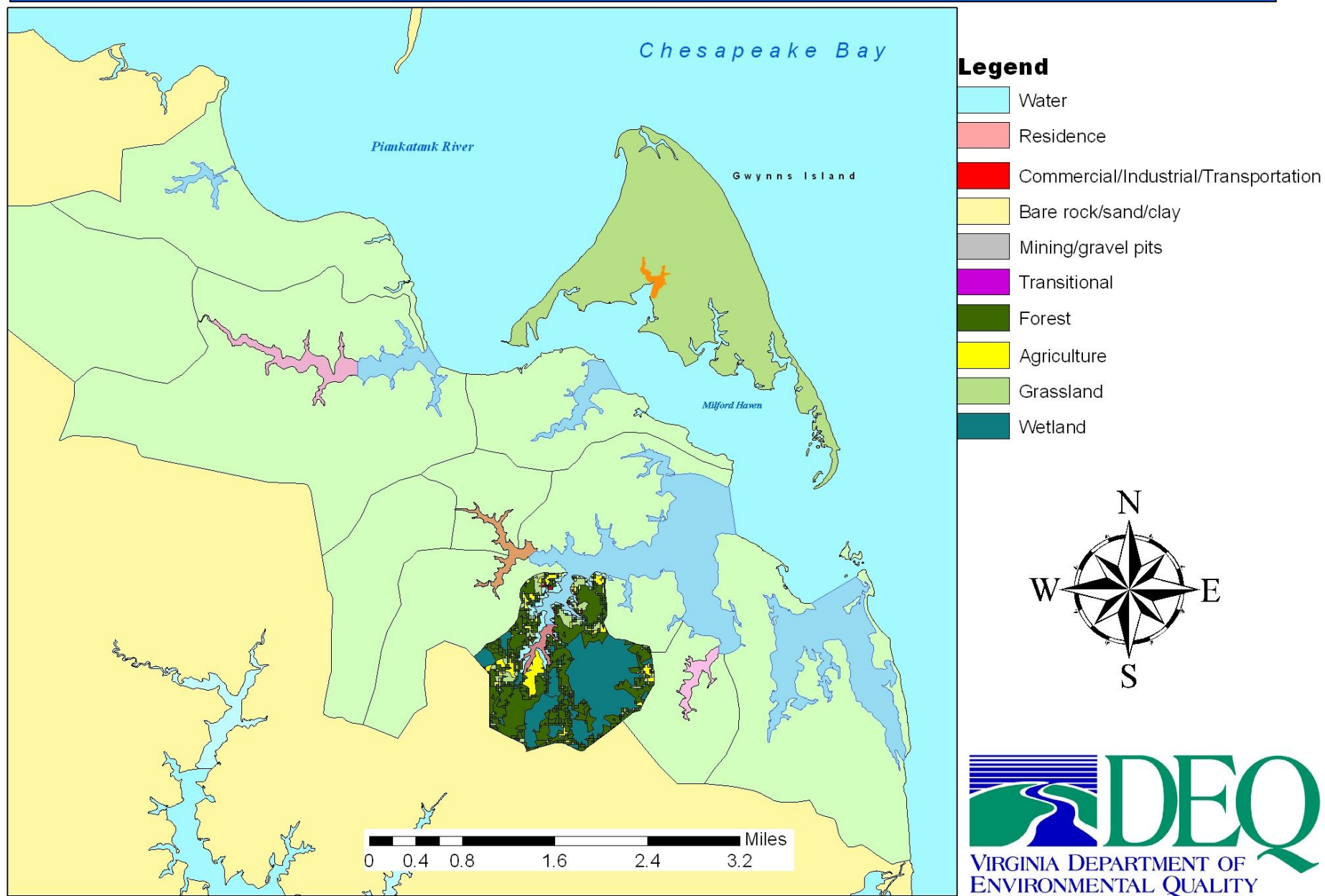


Figure 3.1A
Land Use in Shellfish Growing Area 37, Milford Haven, Queens Creek

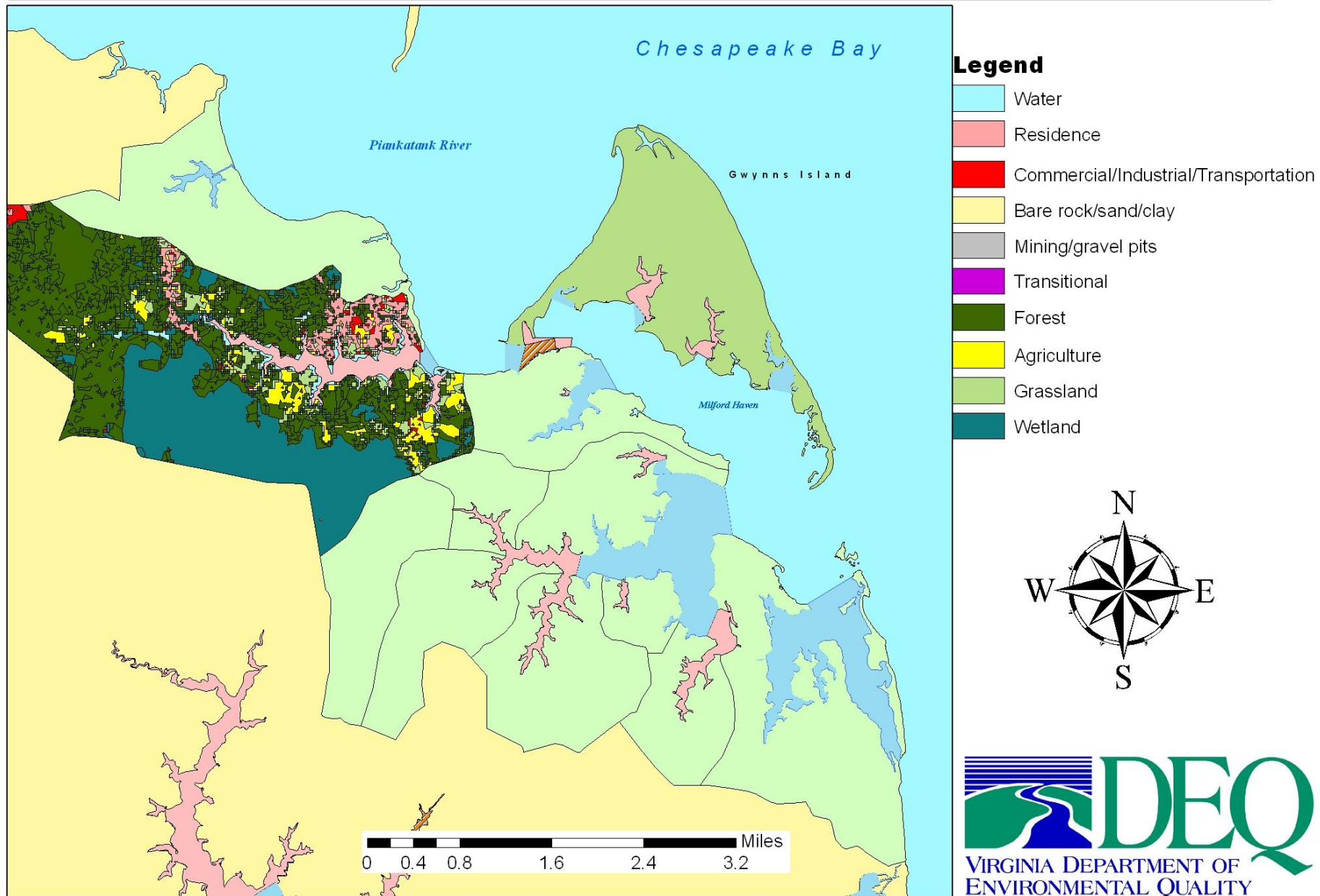


Figure 3.1B
Land Use in Shellfish Growing Area 37, Milford Haven, Stutts Creek

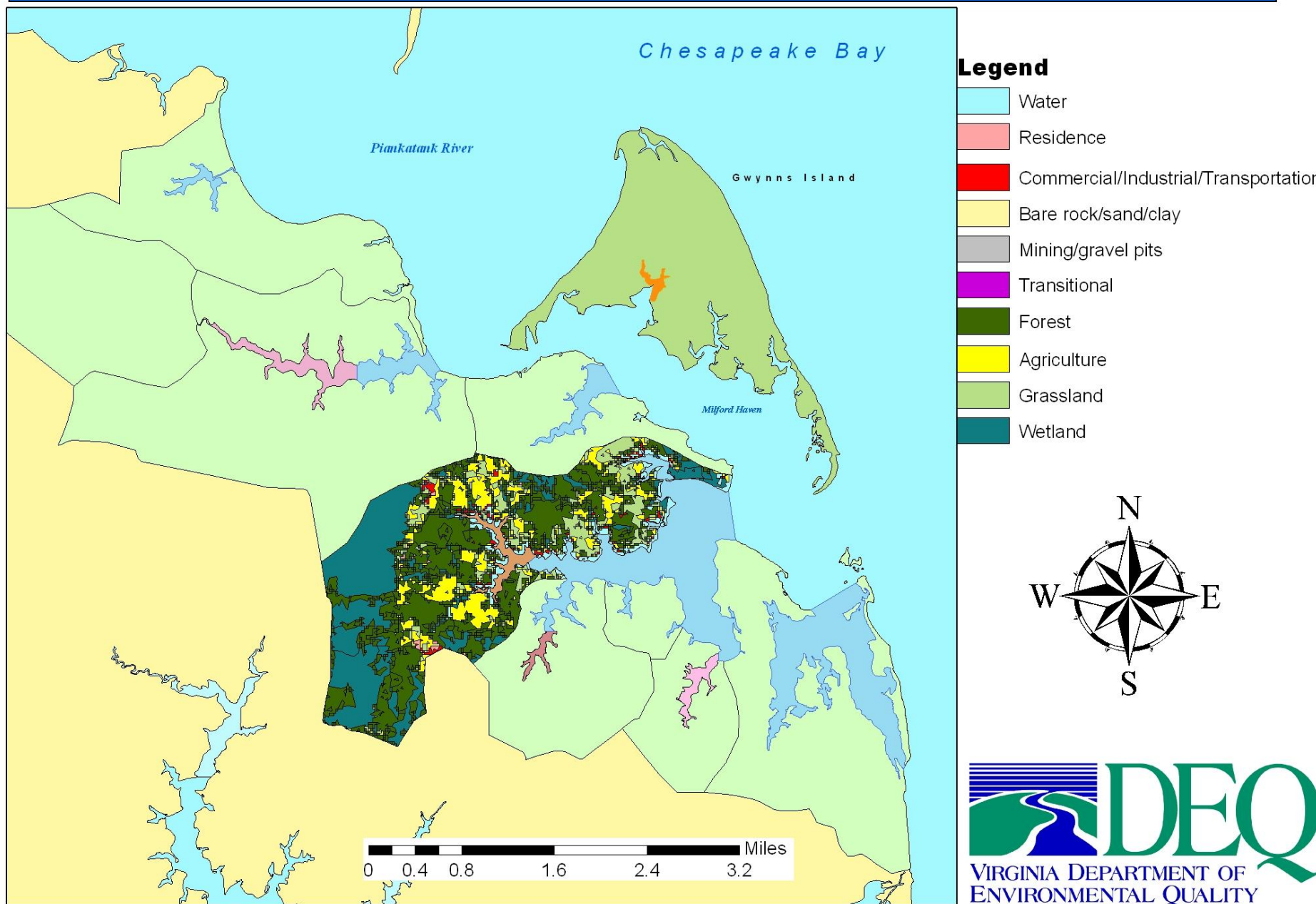
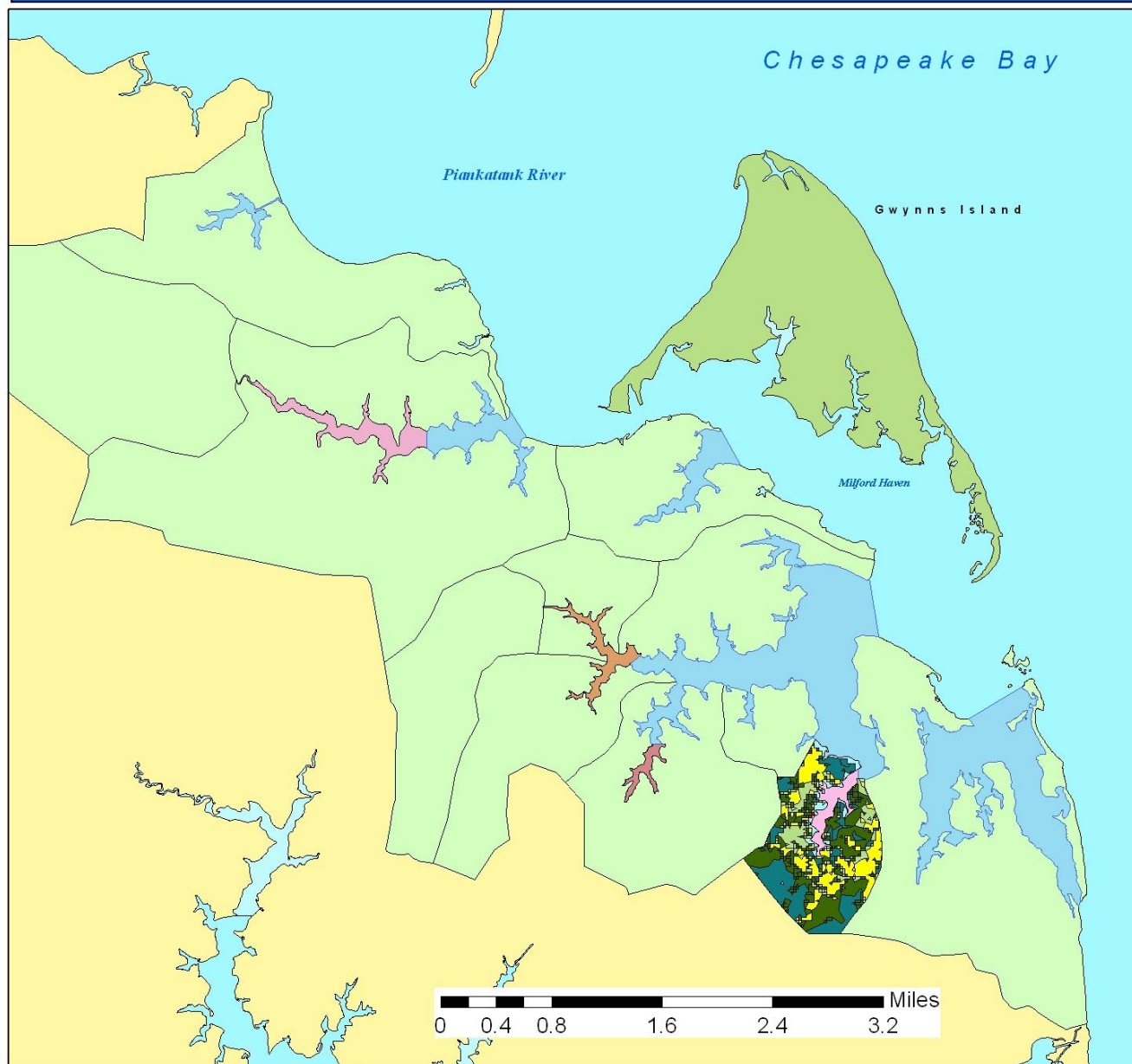
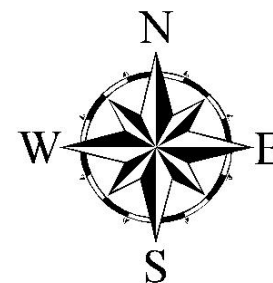


Figure 3.1D
Land Use in Shellfish Growing Area 37, Milford Haven, Billups Creek



Legend

- Water
- Residence
- Commercial/Industrial/Transportation
- Bare rock/sand/clay
- Mining/gravel pits
- Transitional
- Forest
- Agriculture
- Grassland
- Wetland



Summary of Land Use in the Gwynn's Island and Milford Haven Watersheds (in Acres)

Land Use Type	Gwynn's 36-197A (VAP-C04E- 03)	Haven, Queens Creek 37-99A (VAP-C04E- 01)	Haven Stutts Creek 37-61A (VAP-C04E- 05)	Haven 37-61B (VAP-C04E- 04)	Milford Haven Billups Creek 37-204 (VAP-C04E- 07)
Water (tidal flats/ponds)	213	113	46	25	89
Residential	199	40	4	2	248
Commercial/Ind ustrial	36	0	0	0	2
Bare Sand	7	0	0	0	0
Forest	654	1092	445	182	2236
Grassland	208	227	49	56	159
Agriculture	101	335	67	122	255
Wetland	79	721	347	130	1232

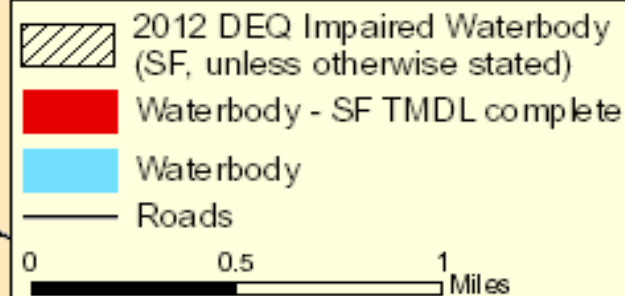
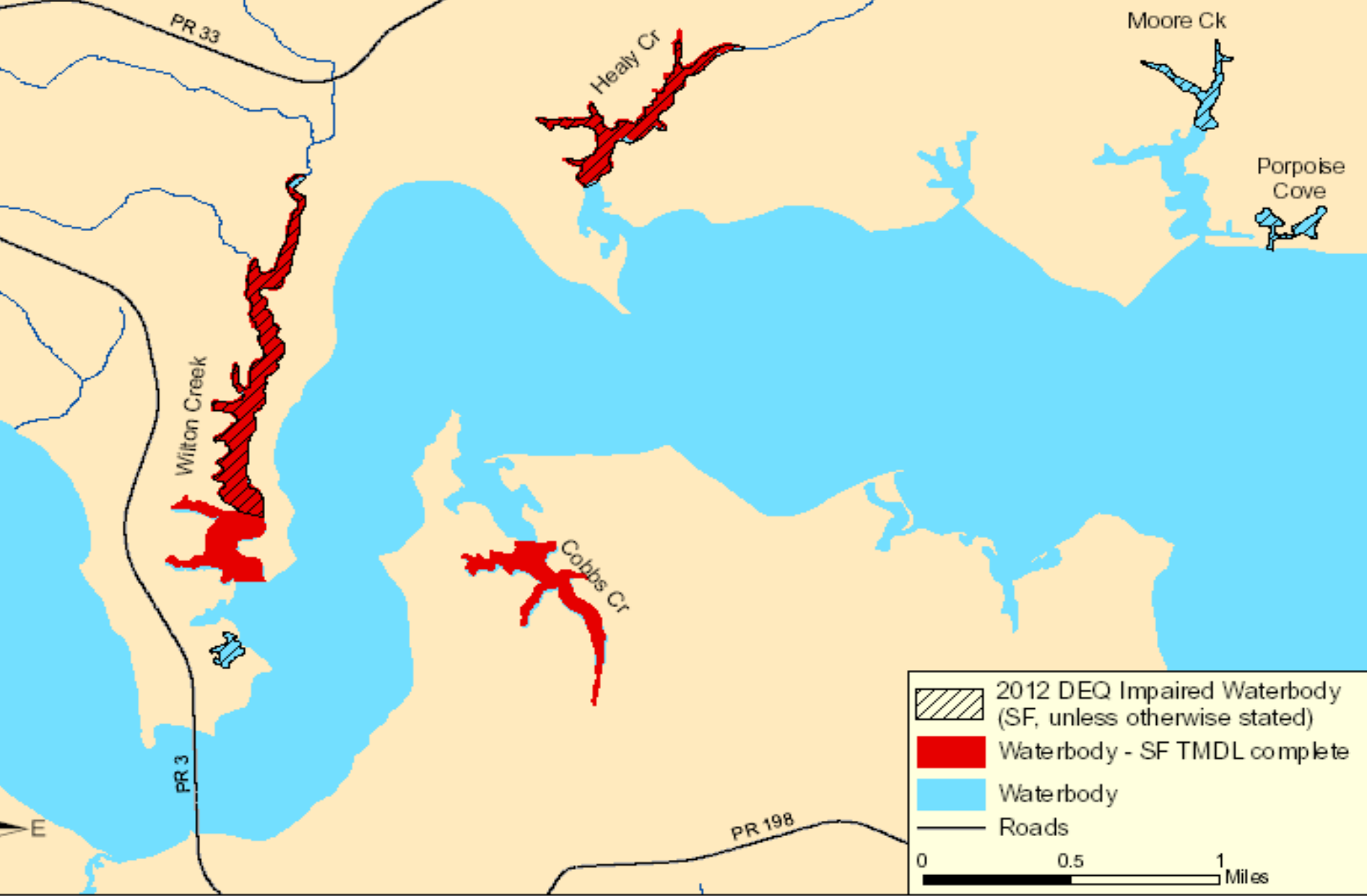
TMDL Summary for Gwynns Island and Milford Haven Impairments

Condemnation Area	Source	BST Allocation % of Total Load	Current Load MPN/ day	Load Allocation MPN/ day	Reduction Needed
36-197A Edwards Creek (VAP-C04E-03)	Wildlife	58%	4.83E+10	2.03E+10	58%
	Human	10%	8.32E+09	0.00E+00	100%
	Livestock	24%	2.00E+10	0.00E+00	100%
	Pets	8%	6.66E+09	0.00E+00	100%
	Total	100%	8.32E+10	2.03E+10	76%
37-99A Queens Creek (VAP-C04E-01)	Wildlife	74%	9.48E+11	1.59E+11	83%
	Human	8%	1.02E+11	0.00E+00	100%
	Livestock	9%	1.15E+11	0.00E+00	100%
	Pets	9%	1.15E+11	0.00E+00	100%
	Total	100%	1.28E+12	1.59E+11	88%
37-61A Stutts Creek (VAP-C04E-05)	Wildlife	45%	1.24E+11	6.69E+10	46%
	Human	13%	3.60E+10	0.00E+00	100%
	Livestock	24%	6.64E+10	0.00E+00	100%
	Pets	19%	5.26E+10	0.00E+00	100%
	Total	100%	2.77E+11	6.69E+10	76%

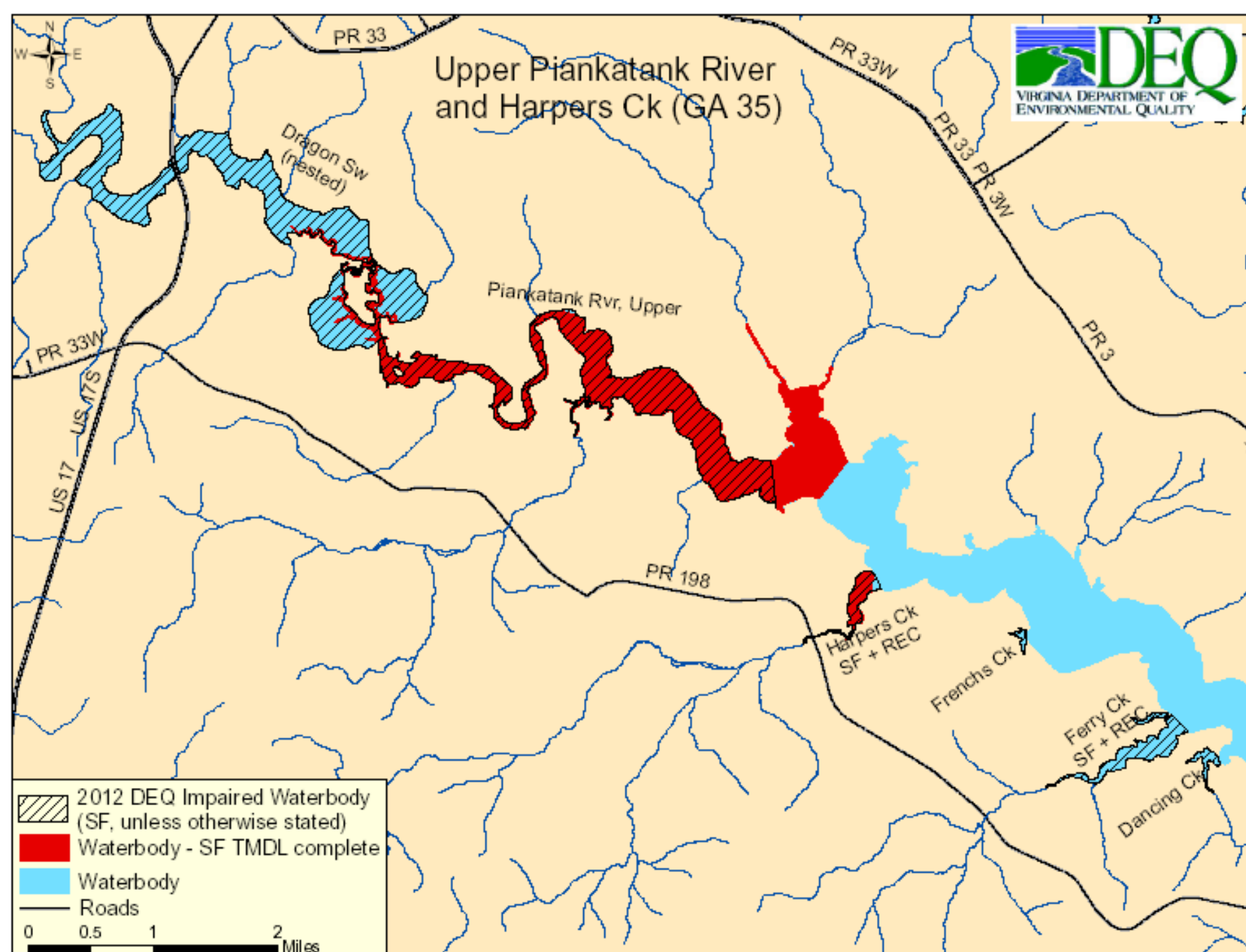
Morris Creek 37-61A (VAP-C04E-04)	Wildlife	64%	4.54E+10	1.80E+10	61%
	Human	10%	7.10E+09	0.00E+00	100%
	Livestock	11%	7.81E+09	0.00E+00	100%
	Pets	15%	1.07E+10	0.00E+00	100%
	Total	100%	7.10E+10	1.80E+10	75%
37-204 Billups Creek (VAP-C04E-07)	Wildlife	31%	7.25E+10	3.68E+10	49%
	Human	30%	7.01E+10	0.00E+00	100%
	Livestock	16%	3.74E+10	0.00E+00	100%
	Pets	26%	6.08E+10	0.00E+00	100%
	Total	100%	2.34E+11	3.68E+10	84%

Condemnation Area	Pollutant Identified	TMDL MPN/day	Waste Load Allocation MPN/day	Load Allocation MPN/day	Margin of Safety
36-197A Edwards Creek (VAP-C04E-03)	Fecal Coliform	2.03E+10	N/A	2.03E+10	Implicit
37-99A Queens Creek (VAP-C04E-01)	Fecal Coliform	1.59E+11	N/A	1.59E+11	Implicit
37-61A Stutts Creek (VAP-C04E-05)	Fecal Coliform	6.69E+10	N/A	6.69E+10	Implicit
37-61B Morris Creek (VAP-C04E-04)	Fecal Coliform	1.80E+10	N/A	1.80E+10	Implicit
37-204 Billups Creek (VAP-C04E-07)	Fecal Coliform	3.68E+10	N/A	3.68E+10	Implicit

ver Piankatank - Wilton, Cobbs,
Healy Creeks (GA 34)

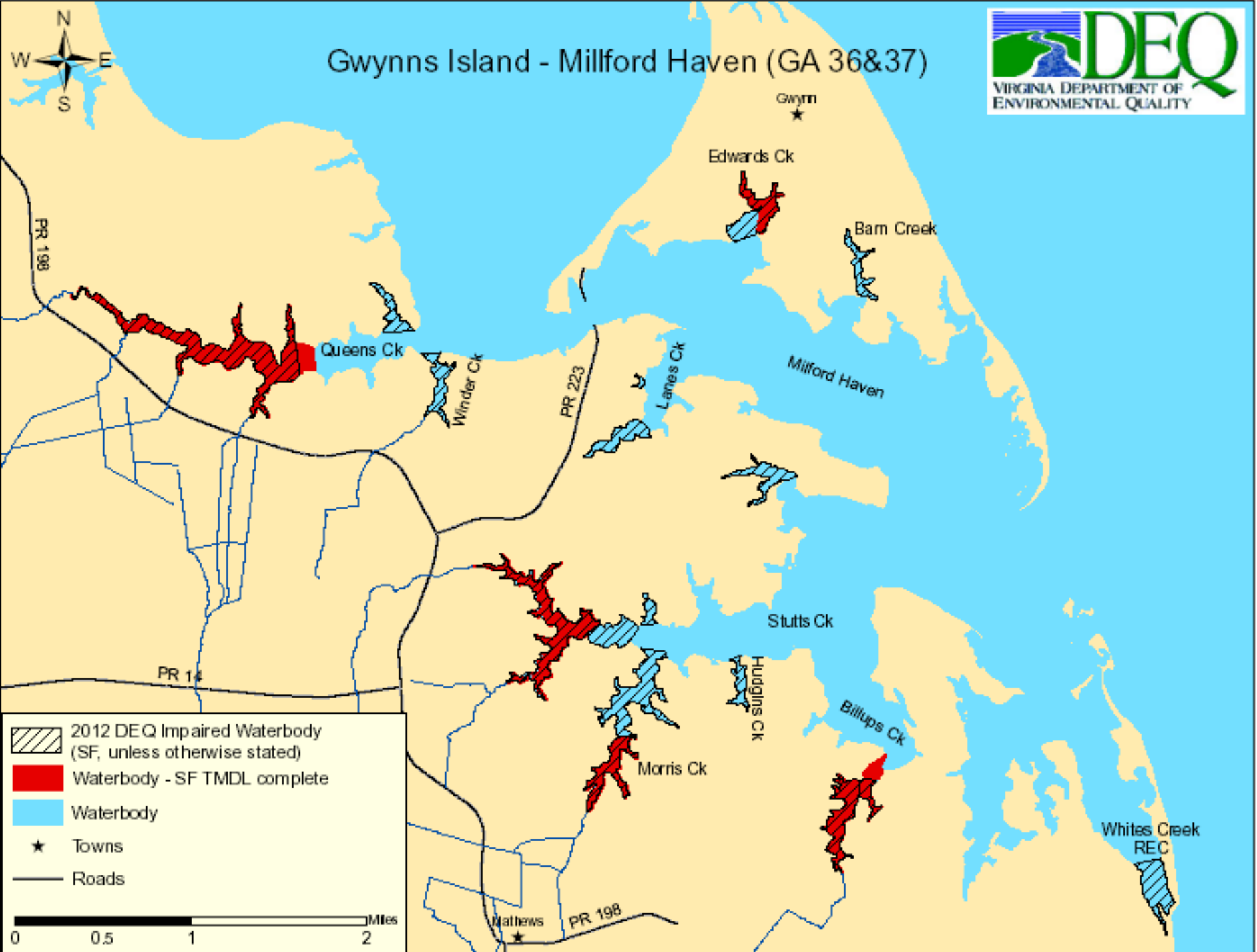


Upper Piankatank River and Harpers Ck (GA 35)

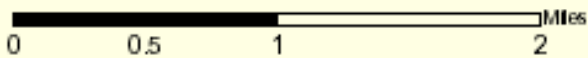




Gwynns Island - Millford Haven (GA 36&37)



- 2012 DEQ Impaired Waterbody (SF, unless otherwise stated)
- Waterbody - SF TMDL complete
- Waterbody
- Towns
- Roads



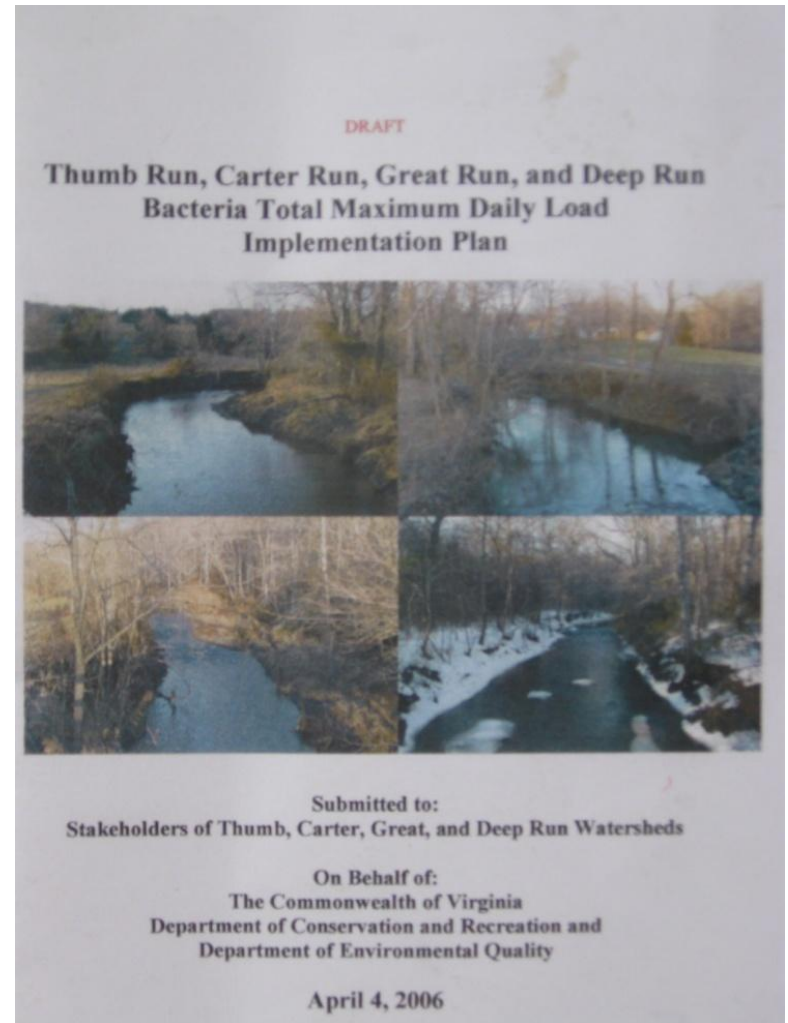
The TMDL Process: 3 Steps

TMDL study

TMDL

implementation plan

Implement plan



What is a TMDL Implementation Plan?

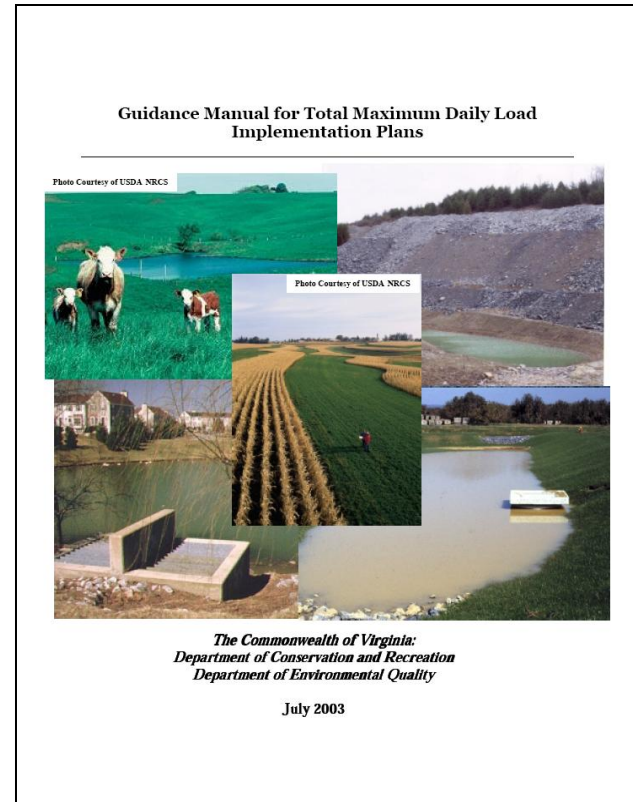
- TMDL study tells us what we need to do, TMDL implementation plan tells us **how**
- Outlines **actions** that can be taken to meet TMDL allocations
- Serves as a **guide** for implementation efforts



Photo courtesy of Mark Alling, DEQ

Why Implementation Plans?

- Implementation Plan development is required by state legislation
- Supported by federal, state and local organizations
- Procedures outlined in DCR & DEQ Implementation Plan Guidance Document



Integration with other Watershed Plans

- Need to account for and **acknowledge** other planning activities within the watershed
- Coordinate with other water quality plans:
 - Watershed plans/roundtables
 - Local Comprehensive Plans
 - Green Infrastructure Planning
 - Water Supply Plans



What goes into an implementation plan?

- Existing plans or improvement projects
- Actions to improve water quality: BMPs, etc
- Project timeline
 - Implementation goals
 - Implementation milestones
- Roles and responsibilities of stakeholders
- Potential funding opportunities

Implementation Plan Development

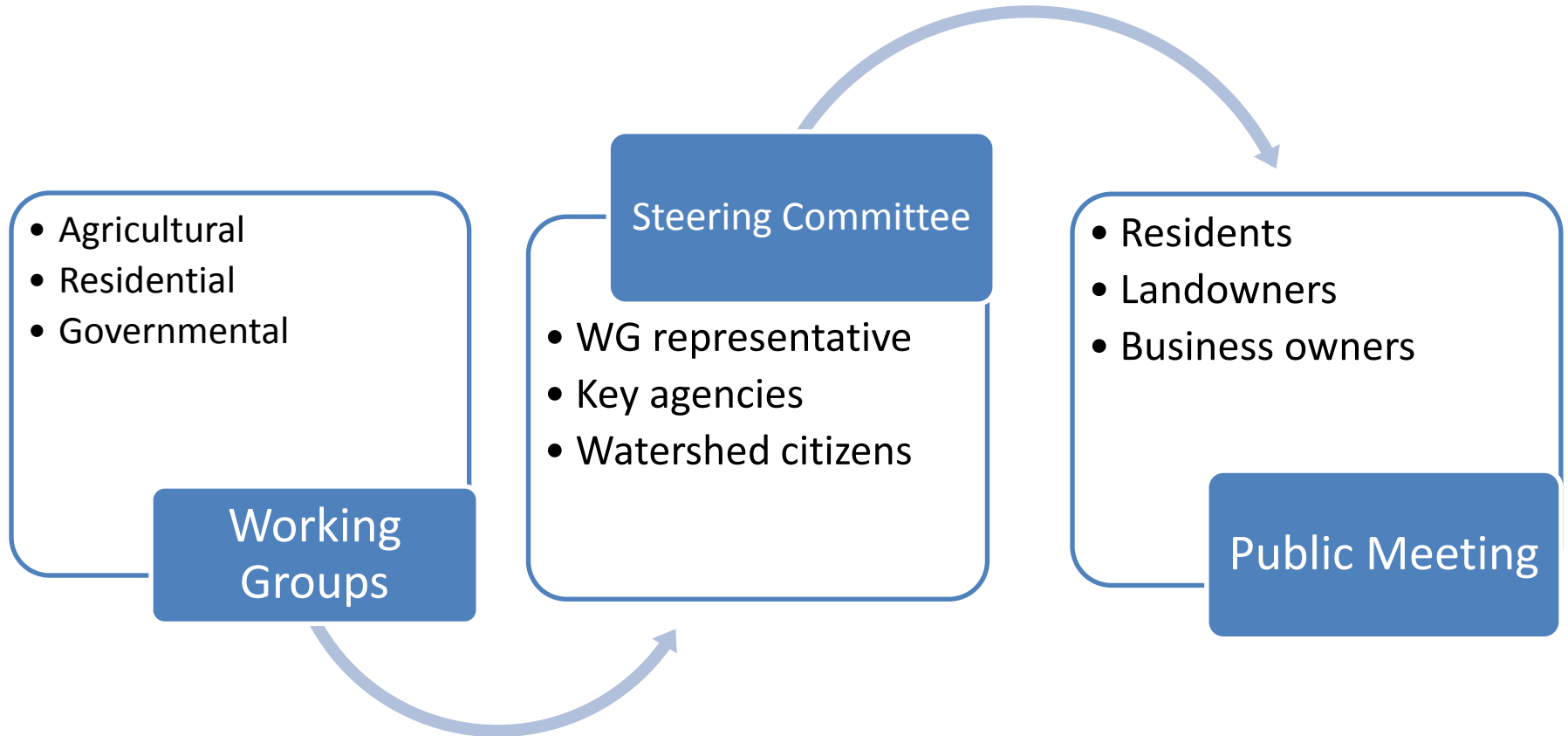
- Implementation Plan will be done **locally**
- Stakeholders will have the opportunity to participate in the plan development
 - Public meetings
 - Working groups
 - Steering committee



Roles Citizens Can Play During Implementation Plan Development

- Provide additional detail on watershed
- Review/suggest implementation strategies
- Identify potential implementation impediments
- Identify local funding sources/partnerships
- Lead implementation projects

Public Participation



Steering Committee

- Responsibility: Guide the IP development process
 - Assess input from working groups
 - Are representative stakeholders engaged?
 - Address community concerns/suggestions as funneled through the WG's
 - How can process be improved?
- Membership:
 - DCR, DEQ, NRCS, VDH, local governments, SWCD, Working group representatives
- Meet once during IP development process

Working Groups

- Responsibilities:
 - provide “representative, interest based” input
 - Review technical/data analysis from Resource Team
- Interests that may coalesce to form a Working Group
 - Agriculture
 - Residential/Urban
 - Recreation
 - Government
 - Watermen
 - Marinas
 - Others?
- Level of Activity
 - Meet at least 2 times during IP development process

Working Group Responsibilities and Tasks

- Inform Resource Team about perceived pollutant sources
- Enlighten Resource Team about on-going/needed pollution control activities
- Review possible implementation strategies from a interest-based perspective
- Discuss alternative funding sources/partnerships
- Identify outreach methods for engaging peers in implementing pollution control measures
- Identify constraints to implementing pollution control measures

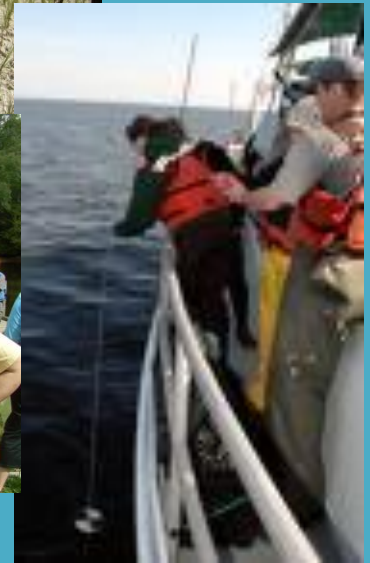
We Are Here to Listen and Learn from YOU !

- Hands-on interaction with maps (where are problems we know of ?)
- Identify appropriate BMPs for impairments (watershed specific)
- Conduct Needs Assessment: identification of practices, quantification of practices (GIS, BMP databases, modeling), technical assistance /outreach

Task	May 2012	July 2012	August 2012	Sept 2012	Oct 2012	Dec 2012
First Public Meeting	May 23					
Working Group #1 meetings	May 23					
Working Group #2 meetings		X				
Steering Committee meeting (draft review)					X	
Final Public Meeting (draft for public comment)						X

One last point to remember

TMDL's and IP's are a mechanism for restoring water quality and are an **opportunity** for diverse groups of people to come together to improve watershed health



Contact Information



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